

AMENDMENTS TO THE CLAIMS

Please amend claims 1 - 7, and add new claims 8 - 13, as follows:

1. (Currently Amended) A filter circuit, comprising:
 - a transconductance device for outputting a current signal according to an input voltage and a feedback voltage;
 - a transresistance device coupled to the transconductance device for outputting an output voltage according to the current signal, wherein the transresistance device comprises:
 - a first capacitor;
 - a resistor network coupled to the capacitor and the transconductance device comprising a plurality of stages connected serially, wherein each stage of the resistor network comprises:
 - an input node;
 - an output node;
 - a first resistor coupled between the input node and the ground; and
 - a second resistor coupled between the input node and the output node;
 - wherein a time constant of the filter circuit is determined by the first capacitor and the resistor network; and
 - a feedback device coupled between the transconductance device and the transresistance device for outputting the feedback voltage according to the output voltage.

2. (Currently Amended) The filter circuit as claimed in claim 1, wherein the transconductance device comprises:

a first operational amplifier having a first non-converting input terminal coupled to a ground, a first converting input terminal₁ and a first output terminal to output the current signal;

a first ~~first~~ third resistor coupled to the first output terminal and the first converting input terminal; and

a ~~second~~ fourth resistor coupled to the first converting input terminal for receiving the input voltage.

3. (Currently Amended) The filter circuit as claimed in claim 1, wherein the transresistance device comprises:

a second operational amplifier having a second non-converting input terminal coupled to a ground, a second converting input terminal₁ and a second output terminal to output the output voltage;

the first capacitor coupled to the second output terminal and the second converting input terminal; and

the resistor network coupled to the second converting input terminal for receiving the current signal.

4. (Currently Amended) The filter circuit as claimed in claim 3~~1~~, wherein the resistance of the first resistor is ~~two times larger than~~ approximately twice the resistance of the second resistor.

5. (Currently Amended) The ~~amplifier~~ filter circuit as claimed in claim 4, wherein the equivalent resistance of the resistor network is approximately $2^n \times R$, wherein

the resistor network includes n stages and the resistance of the second resistor is R.

6. (Currently Amended) The ~~amplifier~~ filter circuit as claimed in claim 31, wherein each of the first resistor and the second resistor is implemented by a MOS transistor.

7. (Currently Amended) The filter circuit as claimed in claim 1, wherein the feedback device comprises:

a third operational amplifier having a third non-converting input terminal coupled to a ground, a third converting input terminal, and a third output terminal to output ~~the output~~ a feedback voltage;

a ~~third~~ fifth resistor coupled to the third output terminal and the third converting input terminal; and

a ~~fourth~~ sixth resistor coupled to the third output terminal for outputting the feedback voltage.

8. (New) A filter comprising:

a first circuit for receiving an input signal and a feedback signal, and generating an intermediate signal;

a second circuit coupled to the first circuit, for receiving the intermediate signal and generating an output signal; and

a feedback circuit coupled to the first circuit and the second circuit, for receiving the output signal and generating the feedback signal;

wherein the second circuit comprises a resistor network, the resistor network comprises a plurality of stages coupled in series, each stage of the resistor

network comprises an input node, an output node, a first resistor coupled between the input node and a common node, and a second resistor coupled between the input node and the output node.

9. (New) The filter as claimed in claim 8, wherein the resistor network comprises an R-2R resistor ladder.

10. (New) The filter as claimed in claim 8, wherein the second circuit performs a function of an integrator.

11. (New) The filter as claimed in claim 8, wherein the first circuit comprises an operational amplifier.

12. (New) The filter as claimed in claim 8, wherein the second circuit comprises an operational amplifier.

13. (New) The filter as claimed in claim 8, wherein the feedback circuit comprises an operational amplifier.